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The Survival of Corynebacterium pyogenes in Discharges from the Udder and the Uterus of the Cow

R. W. ROACH

This work was originally undertaken in response to queries by practitioners regarding the treatment of summer mastitis. Many practitioners feel that, in addition to serum and toxoid treatment, certain cases would benefit from udder lavage. The primary object of such irrigation would be a mechanical one to assist in stripping out some of the discharge. The best drugs to use would obviously be any of the more bland antiseptics which could be proved to have a bactericidal action against *C. pyogenes*. It soon became apparent, however, that the organism when present in pus was highly resistant to the action of antiseptics, and the experiments were extended to cover the more potent disinfectants, in order to determine the best method of sterilization of instruments.

Technique

GENERAL CONSIDERATION

As it was realized that the action of antiseptics on *C. pyogenes* would be affected by the presence of pus cells, it was decided to use natural secretions as experimental material. Milk from cases of summer mastitis was used in most instances but some experiments were carried out on uterine discharges. Only those samples were considered suitable which had been shown to contain *C. pyogenes* in pure culture. This meant that material was usually four days old when it was used, as many of the specimens were submitted by post. Diagnosis of *C. pyogenes* was made on clinical history, appearance and smell of specimen, cultivation for 24 and 48 hours on deep blood agar plates (with crystal violet blood agar plates as control), and on morphology.

1. EFFECT OF ANTISEPTICS ON *C. pyogenes* IN THE PRESENCE OF PUS

The general scheme here was to take 9 ml. of discharge and 1 ml. of 10 per cent. antiseptic, so that a final dilution of one-tenth 10 per cent. was obtained. Samples were removed at predetermined intervals and cultured on deep blood agar. Several points required special consideration. Due partly to the tenacious nature of the discharges and partly to the cultural characteristics of *C. pyogenes*, serial dilutions yielding discrete countable colonies are difficult to obtain. It had also to be borne in mind that a certain amount of disinfectant would be introduced into the plates, and this might have an adverse effect on growth. For this reason, the amount of material removed was reduced to a minimum and three saline dilutions were prepared.

To combat the action of antiseptics after the determined time, blood was introduced into the plates prior to inoculation and each plate was poured immediately after inoculation and was placed in the incubator as soon as it was set. Precise details were: 9 ml. of discharge was pipetted into a sterile rubber-bunged tube and after a control specimen had been removed, 1 ml. of disinfectant was added. The tube was well shaken. At the predetermined intervals 0·2 ml. of the mixture was removed into 10 ml. sterile normal saline, 1 ml. of this was transferred to 9 ml. sterile saline, a second pipette taken, and 1 ml. of this second mixture was added to another 9 c.c. of saline. 0·5 ml. of these dilutions were immediately pipetted into the petri dishes. As it became apparent from the earliest experiment that iodine destroyed all *C. pyogenes* present within a few minutes, an iodine control was carried out on all batches of material.

2. SURVIVAL AT ROOM TEMPERATURE

A sample of summer mastitis milk was kept in a rubber-bunged tube on the bench and samples were plated out periodically.

3. EFFECT OF HEAT ON *C. pyogenes* DISCHARGES

2 ml. amounts of discharge (in narrow tubes) were placed in water baths and samples were given a minute to warm through, after which specimens were removed at periodic intervals. It was found that samples held at 80° Centigrade became solid, and it was difficult to obtain suitable specimen samples. The experiments were therefore repeated, using sealed pasteur pipettes each containing 0·5 ml. of *C. pyogenes* infected milk. These were placed in the water baths and at the required interval a pipette was taken, the end broken off, and a drop of the contents introduced into a petri dish.

4. EFFECT OF ANTISEPTICS ON CONTAMINATED INSTRUMENTS

A 5 c.c. syringe was taken and fitted with a sterile teat syphon of record fitting, which was kept attached throughout the experiment. 2 ml. *C. pyogenes* milk was sucked up and then "squirted" out again. 2·5 ml. of saline was then drawn into the syringe, and the plunger was worked up and down three times, after which the saline was discarded. A further 1·5 ml. of this saline was then drawn into the syringe, the plunger worked up and down ten times, and 0·5 ml. of this saline was used to seed a plate, the remaining 1 ml. being used for serial dilutions. The experiment was repeated using 2·5 ml. of various antiseptics in place of the 2·5 ml. saline.

Results

1. EFFECT OF ANTISEPTICS ON *C. pyogenes* IN THE PRESENCE OF PUS

The readings of all plates are shown, the number of organisms being estimated visually to the nearest 500 (in the case of iodine controls lesser numbers were sometimes noted). It will be seen that in some cases the first plate appears to be sterile, this being due presumably to the concentration of antiseptic present.

(*a*) *Acriflavine*

Udder secretion from a natural case of summer mastitis was the material used for this experiment. The milk was thin with many clots and was diluted slightly with saline so that three batches of 9 ml. each were obtained. Results are shown in Table I.

TABLE I

THE EFFECT OF ACRIFLAVINE SOLUTIONS ON *C. pyogenes*

Minutes after addition of Acriflavine	Serial dilutions, Plate No.	Final dilutions of Acriflavine		
		1 : 500	1 : 1,000	1 : 10,000
0	1	HH	HH	HH
	2	HH	HH	∞
	3	XXX	XXX	XXX
1	1	—	—	
	2	H	H	
	3	XX	XXX	
2	1	—	—	
	2	H	H	
	3	XXX	XXX	
3	1	—	—	
	2	H	H	
	3	XX	XXX	
4	1	—	—	
	2	H	∞	
	3	XX	XX	
5	1	—	∞	∞
	2	∞	∞	∞
	3	XXX	XXX	XXX
10	1	—	XX	HH
	2	∞	∞	∞
	3	XX	XXX	XXX
15	1	—	XX	HH
	2	∞	∞	∞
	3	XX	XX	XXX
30	1	—	—	∞
	2	XXXX	XXXX	∞
	3	XX	XX	XX
60	1	—	—	XXX
	2	XXXX	XXXX	XXX
	3	XX	XX	XXX
90	1			XXXX
	2			XXX
	3			X
120	1			XXXX
	2			X
	3			A few

* No sign of growth until 36 hours' incubation; remainder showed slight growth at 24 hours.

(*See overleaf for Scheme of Abbreviations*)

SCHEME OF ABBREVIATIONS

HH = complete haemolysis of the plate.
H = nearly complete haemolysis of the plate.
∞ = colonies too numerous to be counted.
XXXX = 2,000 colonies (estimated).
XXX = 1,500 colonies (estimated).
XX = 1,000 colonies (estimated).
X = 500 colonies (estimated).
† = a few colonies
— = no growth.

(*b*) *Iodine*

A final dilution of 1 : 1,000 aqueous iodine was used. Results may be summarized :—

Material used	Serial dilutions	Minutes after adding iodine				
		0	½	1	2	3
Thin uterine discharge. Easy to pipette.	Plate 1	HH	†	X	—	—
	„ 2	HH	∞	X	—	—
	„ 3	∞	†	X	—	—
Thick summer mastitis milk	„ 1	∞	—	—	—	—
	„ 2	XXX	—	—	—	—
	„ 3	X	—	—	—	—
Thin summer mastitis milk	„ 1	HH	XXXX	—	—	—
	„ 2	H	X	—	—	—
	„ 3	XXXX	—	—	—	—

In view of the efficiency of iodine, it seems feasible to try a preparation in the treatment of summer mastitis. Chemists stock both a proprietary paraffin emulsion and an iodine colloid suspension. Equal parts of these give a paraffin-iodine mixture of final concentration 1 : 1,000 iodine. This is the same strength as used by Sanders in the treatment of *Streptococcus agalactiae* mastitis in America. I suggest that 500 c.c. per quarter of this compound might be tried in the treatment of summer mastitis.

(*c*) *Bis-2-methyl-4-amino-quinolyl-6-carbamide hypochloride (Metholyl)*

This was tried out in varying dilutions against both uterine discharge and summer mastitis milk.

Sample (*a*) was a specimen of uterine discharge which was not so viscous as usual and could be pipetted with ease.

Sample (*b*) was a similar specimen from a second cow.

Sample (*c*) was a specimen of summer mastitis milk. It was difficult to get an exact measure of this material as a large number of floccules were present. Results are shown in Table II.

(*d*) *Dettol*

Using a sample of undiluted summer mastitis milk, the following results were obtained :—

Time after addition of antiseptic	Serial dilution	Final dilution of antiseptic	
		1 : 1	1 : 10
0 minutes	1st Plate	HH	HH
	2nd „	HH	HH
	3rd „	HH	HH
2 minutes	1st „	HH	HH
	2nd „	HH	HH
	3rd „	XXXX	HH
5 minutes	1st „	HH	HH
	2nd „	HH	HH
	3rd „	HH	HH
10 minutes	1st „	HH	HH
	2nd „	HH	HH
	3rd „	XXXX	H
15 minutes	1st „	HH	H
	2nd „	HH	H
	3rd „	XXXX	XXXX
20 minutes	1st „	HH	HH
	2nd „	HH	HH
	3rd „	XXXX	H

Iodine control showed 2,000 colonies surviving at the end of a half minute (on the first plate), but subsequent specimens removed at one and two minutes were sterile.

It will be seen from the above that the specimen contained a rather larger number of organisms than usual. The experiment was repeated on a further specimen of milk, samples being examined at the end of 0, 15, 30, 60 and 120 minutes. There was some slight reduction in number at the end of the two-hour period.

TABLE II

THE EFFECT OF METHOLYL ON *C. pyogenes*

Minutes after additions of antiseptic	Dilutions. Plate No.	Final dilution of antiseptic			
		1 : 100	1 : 1,000	1 : 1,000	1 : 10,000
0	1	H	∞	HH	HH
	2	∞	X	H	HH
	3	XX	XXXX	H	XX
5	1				HH
	2				H
	3				HH
15	1	H	∞	HH	HH
	2		XX	∞	HH
	3	XX	∞	∞	∞
30	1	H	∞	H	HH
	2	XX	X	∞	HH
	3	XX	XX	XXXX	XX
45	1				HH
	2				HH
	3				200
60	1	H	XXXX	H	HH
	2	XX	XX	∞	HH
	3	XX	XX	XXXX	200
120	1	XX	∞	HH	
	2	XX	∞	XXXX	
	3	X	XX	XX	
180	1		∞		
	2		∞		
	3		X		
240	1		∞		
	2		XX		
	3		X		
Nature of discharge		Summer mastitis milk containing sufficient floccules to make accurate pipetting difficult.		Sample of pus from abscess at *post-mortem* examination	Uterine discharge
Iodine "index" of material.		All organisms destroyed in ½ minute.		All destroyed ½ minute.	1 minute

TABLE III

EFFECT OF CRYSTAL VIOLET, MILTON AND LYSOL ON *C. pyogenes*

Minutes after addition of antiseptic	Serial dilutions. Plate No.	Final dilutions of antiseptics		
		Crystal Violet 1 : 1,000	Milton 1 per cent.	Lysol 1 per cent.
0	1	HH	HH	HH
	2	HH	HH	HH
	3	H	HH	HH
5	1	HH		∞
	2	HH		X
	3	H	—	X
10	1	HH		X
	2	HH		X
	3	H	—	—ve
15	1	HH	HH	—ve
	2	HH	HH	—ve
	3	H	HH	—ve
30	1	HH	HH	—ve
	2	HH	∞	—ve
	3	H	XX	—ve
60	1	H	HH	
	2	∞	HH	
	3	∞	∞	—
120	1		HH	
	2	—	∞	
	3		XX	
Nature of discharge used.		Milk from case of summer mastitis after treatment with serum and toxoid.		Milk from a fresh case of summer mastitis. Contained some floccules.
"Iodine control."		All organisms destroyed within 1 minute.		*C. pyogenes* survived 1½ minutes' exposure but were dead at 2 minutes.

(*e*) *Crystal Violet* (1 : 1,000), *Milton* (1 : 100), *and Lysol* (1 : 100)

The action of the above antiseptics in the final dilution shown was examined and results are shown in Table III.

2. Survival at Room Temperature

The specimen was originally collected on 21.7.44 and when examined on 25.7.44 and 4.8.44 was shown to contain apparently pure cultures of *C. pyogenes*. On 9.8.44 the number of *C. pyogenes* was unaltered but a few staphylococci appeared on the plates. When examined on 16.8.44 *C. pyogenes* could not be demonstrated, the plates apparently being full of staphylococci which turned the blood a greenish colour.

3. The Effect of Heat on *C. pyogenes* Discharges

Using the original technique of 2 ml. held in a water bath, the following results were obtained :—

At 50° Centigrade there was no effect on the organism after 15 min.

At 60° Centigrade there was complete haemolysis of the plate at 0 min., half haemolysis of the plate at one minute, 1,000 colonies were present at the end of three minutes, and the organisms appeared to have been killed at the end of five minutes.

At 80° Centigrade there was no effect at the end of five minutes, a few colonies only were demonstrated at the end of ten minutes, and no organisms at the end of 15 minutes. This anomalous result was apparently due to the fact that the clotting of the milk at the higher temperature protected the organism somewhat.

When the experiment was repeated using the same technique, the organisms survived at 60° Centigrade for five minutes, and a few organisms were still demonstrated at 15 minutes, whilst at 80° Centigrade, the organisms which were still alive after one minute were killed at the end of the third minute. Using the pipette technique, it was shown that at 60° Centigrade the organisms survived for one minute unimpaired, but were dead at the end of three minutes, and at 80° Centigrade a few organisms were alive at the end of one minute, but none survived until the third minute.

4. The Effect of Antiseptics on Contaminated Instruments

Using the technique described, the following results were obtained :—

Antiseptic	1st Plate	2nd Plate	3rd Plate
Control	∞	∞	2000
Abs. alcohol	XXXX	‡	—ve
Lysol, 2 per cent.	—ve	‡	—ve
Iodine, 1 per cent. ..	—ve	—ve	—ve
Dettol, 10 per cent. ..	‡	2/0	‡

DISCUSSION

This article is presented with the full knowledge that the data given are by no means complete, but as the experiments had to be suspended it seemed desirable to publish the results which had accrued, as they indicate that *C. pyogenes* is able to survive conditions that might otherwise have been accepted as sufficient to bring about sterilization. An important omission from the disinfectants that were tested is that of Propamidine. A small quantity of this was available by courtesy of Messrs. May & Baker but discharges suitable for experimental material could not be obtained at the time.

The results show that *C. pyogenes* is able to resist quite high concentrations of disinfectant and to survive in secretions for appreciable periods. It will be seen that some of the measures which are adopted by a large number of practitioners for the sterilization of instruments may be ineffectual against this particular organism.

In these days when so much stress is placed upon aseptic procedures, the value of antiseptics tends to be overlooked. It would be interesting to find out just how long the organism can survive on contaminated instruments.

Attention is drawn to the serious danger of survival of the organism in catheters used to treat *C. pyogenes* metritis, and on teat syphons used in cases of summer mastitis.

Summary

1. Results are given of the effect of acriflavine, iodine, metholyl, dettol, crystal violet, Milton and lysol on *C. pyogenes* when this organism is present in discharges from the udder and uterus. With the exception of iodine and lysol, none of the above disinfectants has any appreciable effect on the organisms.

2. The organism was shown to remain alive for at least 19 days in a sample of summer mastitis milk kept at room temperature.

3. Whilst the organism is readily destroyed by heat of 80° Centigrade, clotting of the discharge at this temperature may assist the organism to survive for longer periods.

4. Instruments contaminated with *C. pyogenes* discharges are difficult to sterilize.

CLINICAL COMMUNICATION

A Malignant Vaginal Neoplasm in a Cow Cured by Stilboestrol Implantation

R. D. FRANKLIN, M.R.C.V.S.
Wolverhampton

Subject.—This was a 3½-year-old Shorthorn cow.

History.—As a yearling, a tumour was removed from the wall of the vagina with apparent success. Later, she was served and held to the bull.

At the time of calving the tumour was found to have reappeared, with the appearance of malignancy, being diffuse and covering the whole of the vaginal wall, and part protruded through the vulva.

It was considered to be inoperable, and the owner was advised to get rid of the animal at the end of her lactation.

Procedure.—A 1 gramme tablet of stilboestrol dipropionate was implanted into the subcutaneous muscle of the neck. This was carried out merely with a hope of keeping the cow in lactation for a longer period, and with no thought of anti-carcinogenic action.

This implantation resulted in no alteration in the sexual cycle, and she came in oestrus at normal intervals. Nothing could be felt of the tablet five months after implantation, so presumably it was then almost absorbed.

After three months the part of the tumour protruding from the vulva had disappeared, and the part inside the vagina was definitely regressing. Previously it was almost impossible to get one's arm right inside.

After five months a lump, the size of an orange, on a well-defined pedicle, was all that remained. This was removed with an écraseur—under epidural anaesthesia.

This specimen was sent to the Edinburgh College for pathological examination, and the following was the report: "Microscopical examination of the above tumour showed it to be a typical cellular fibro-sarcoma, and definitely had the appearance of being capable of rapid growth."

The cow was served two weeks afterwards, and is now safely in calf. Incidentally, 15 months after calving she is giving one gallon of milk per day.

ABSTRACTS

[Observations on Infertility in a Dairy Herd, with Special Reference to Trichomonas foetus Infection. Wright, J. G., and Arthur, G. H. (1945.) *J. comp. Path.* **55**. 49-62.]

This communication comprises a useful record of clinical investigations in a herd of pedigree Friesian cattle in which the incidence of infertility was high. The incidence of tuberculosis in the herd was severe. All females had been treated as maiden heifers with the original live-culture *Br. abortus* vaccine prepared by the Ministry of Agriculture; the incidence of abortion had been negligible. The general condition of the cows was good and they were high milk yielders. The majority of the heifers were in poor condition.

Difficulty had been experienced in getting cows and heifers in-calf for several years and the breeding situation had now become serious. Some animals returned to heat at frequent and fairly regular intervals, but the majority showed oestrus only at long and irregular intervals; they were served whenever they were observed in heat. A number of cows and heifers had shown a white discharge from the vulva after service. None was known to have aborted a small foetus, although it is possible that unobserved abortions might have occurred at pasture. Both bulls used in the herd exhibited no abnormal symptoms. No new animals had been brought into the herd for a number of years. A significant finding was that one of the bulls had been loaned to another herd for a period of six months. An examination of the breeding records strongly suggested that *T. foetus* infection was introduced by this bull, although this could not be positively confirmed.

The chief causes of infertility in the herd were found to be: (*a*) *T. foetus* infection, with failure to conceive, abortion and pyometra; (*b*) endocrine dysfunction associated with absence of heat and classified, according to the findings at ovarian examination *per rectum*, as suboestrum, anoestrum and cystic ovaries.

Of 77 females exposed to *T. foetus* infection by service, 16 (21 per cent.) conceived and carried to term, without evidence of the disease; 23 (30 per cent.) became infected, and of these four aborted and four others developed pyometra; 38 (49 per cent.) failed to conceive, but the parasite was not isolated from them.

Trichomonads were not recovered from the bulls used during the period of spread of infection, either during life or at *post-mortem* examination.

Females exposed to *T. foetus* infection were treated in several ways. In most, uterine infusion was adopted and a variety of antiseptic agents was used (iodine, iodine with lactic acid, 0·01 per cent. mercuric chloride, and 0·02 per cent. "Metaphen"). In some, vaginal douching only was employed, while in a few no local treatment was applied. The great majority of the animals subsequently conceived. To combat the spread of *Trichomonas* infection, natural service was replaced by artificial insemination, using, in the majority of instances, the semen of "clean" bulls. The semen of a "carrier" bull was used by artificial insemination in 17 animals, in only one of which infection resulted.

Pyometra cases failed to respond by syphonage and irrigation of the uterus, but the injection of stilboestrol dipropionate followed by posterior pituitary extract was followed by evacuation of the pus. Three out of four cases subsequently conceived and carried their calves.

In the treatment of suboestrum, expression of the corpus luteum was found to be more satisfactory than stilboestrol. Of 27 cases of suboestrum in which the corpus luteum was expressed, 19 (70 per cent.) showed visible heat in from one to five days; 17 were inseminated at the induced heat, of which 10 are known to have conceived. In those which failed to conceive, recurrent oestrous cycles were established. Ten cases of suboestrum were treated by the i/m injection of from 15 to 25 mgm. of stilboestrol dipropionate; in five visible heat occurred in from one to six days, but none of these conceived to insemination. In three of the cases recurrent cycles were established.

Anoestrum failed to respond successfully to injection of P.M.S. Natural heat occurred after variable periods ranging from 24 to 69 days after the P.M.S. treatment. In a number of cases *super* follicle development followed the injection of 2,250 to 3,000 I.U. of P.M.S., and in some of these a yellow, opaque vulval discharge developed, which was apparently of uterine origin.

Eight cows were destroyed as sterile. In two no abnormality to account for sterility was found, in two there was tuberculosis of the genital tract, and in three ovaro-bursal adhesions. In one there was a gross cyst-adenoma of the right ovary.

N. J. S.

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[Contributions to the Study of Swayback in Lambs. Part I: Field Experiments; Part II: Blood Copper Investigations. HUNTER, A. H., EDEN, A., and GREEN, H. H. (1945.) *J. comp. Path.* **55**. 19-28 **and 29-40.]**

The authors by direct experiment and by observation of flocks receiving 0·3 per cent. Cu licks have confirmed the value of copper treatment in the prevention of swayback in Derbyshire, but their findings cast grave doubt on the theory that copper is the only factor involved in its aetiology.

Among 231 lambs from Cu-treated ewes (0·5 g. fortnightly) six developed swayback whilst 52 were affected among 230 controls. Other trace elements (cobalt, manganese, iron and iodine) in no way influenced the positive effect of copper and were themselves of little value in the prevention of swayback. The seasonal fall in blood copper noted in the ewes was arrested by treatment but persisted only so long as treatment continued. It is recommended that the Cu content of licks be increased from the usual 0·3 per cent. to 1 per cent. or even 2 per cent. to effect a general increase in the measure of protection afforded.

Great importance should be attached to the fate of 40 ewes removed from "affected" grazings to Weybridge. These were known to have given birth to swayback lambs the previous year and on arrival were shown to have the characteristic low blood-copper figure. At Weybridge, despite the fact that their Cu intake was only approximately one-quarter or one-half that from their native grazings, there followed within three weeks of their arrival a sharp rise in the blood-Cu of the controls to a figure which equalled that of those receiving Cu treatment, a feature reflected subsequently by the birth of normal lambs to these controls. No significant rise was noted in blood-copper following the treatment of the ewes at Weybridge, much as Eden (*Vet. Rec.* **52**. 264) showed was the case in normal sheep.

The authors rightly suggest on results that "some factor in the natural pastures in Derbyshire other than mere quantity of Cu is responsible for the low blood Cu status in ewes grazing thereon and is closely associated with the development of swayback in lambs."

W. T.R.

Because of the Victory parades, the annual parade of London cart horses (which used to be held on Whit Monday) will this year be held on August Bank Holiday in Regent's Park.

Visit of the Delegates of the French Colonial Veterinary Service

As reported in our issue of last week, a reception was held at the Colonial Office on Monday, April 1st, when the Right Hon. George Hall, M.P., Secretary of State for the Colonies, received the guests, which included the delegates: Monsieur Feunteun, Chief of the Veterinary Service of the French Colonial Office, and his colleagues, Monsieur Lloverel (Deputy Chief), Monsieur Balay and Monsieur Vallée, and a very representative body of the veterinary profession.

On Tuesday evening the delegates were entertained to dinner at the Café Royal, when a representative body of mainly French-speaking members of the profession were present, together with Mr. John Smith, Mr. Thompson, of the West African Dept., Colonial Office, and Mr. Robinson, of the International Relations Dept., Colonial Office. Among the members of the profession attending were the President, N.V.M.A., Geo. N. Gould; Mr. T. L. Wright, Hon. Secretary, N.V.M.A.; Dr. Wooldridge, Mr. Steele-Bodger, Dr. Edwards, Dr. Stableforth, Mr. John Pasfield, Major Hancock and Mr. Glover.

The following morning the delegation, accompanied by Mr. John Smith, O.B.E., M.R.C.V.S., Adviser on Animal Health to the Colonial Office, and Mr. W. W. Henderson, ot the Colonial Veterinary Service (late Director of Veterinary Services, Nigeria) arrived at the National Veterinary Medical Association's headquarters at 9.45 a.m. The organization of the association, its membership, functions and activities were explained by the General Secretary, Mr. F. Knight, and recent publications of the association dealing with disease control were presented to the delegates.

Afterwards the party, accompanied by Mr. Gould, Mr. Wright, Dr. Wooldridge, and Mr. Steele-Bodger, left to visit the Royal Veterinary College, Camden Town, where they were received by the Principal, Professor J. G. Buxton, who in welcoming the delegates, gave a brief historical survey of the establishment of the veterinary schools in this country. This was followed by a tour through the various departments, including the clinical departments, where the party were welcomed by Mr. Knight, M.R.C.V.S., who gave a brief account of his work with X-ray. Coffee and biscuits were served in the Refectory, and Monsieur Feunteun suitably acknowledged the welcome they had been given at the College and the facilities granted for their tour.

On leaving the College the party proceeded by road to the Wellcome Veterinary Research Station at Frant, stopping at Penshurst for lunch as the guests of Messrs. Burroughs Wellcome, where they were met by Dr. Mongomerie and Mr. S. L. Hignett. A very instructive tour of the Field Station at Frant followed—the party being conveyed through the estate on a farm trailer. The herd was inspected, and various animals under treatment for infertility and mastitis proved of great interest. The breeding of laboratory animals, including the cotton rat, and the production of serum of various types was explained. A very comprehensive tour ended with a delightful tea in the Grange. Monsieur Feunteun conveyed the thanks of the party for a very interesting and instructive tour, after which the party returned to London.

The following morning the delegation, accompanied by Mr. John Smith, Capt. Henderson, the President and Mr. Steele-Bodger, left London for a visit to Mr. John Dalrymple's herd at Partridge Green, near Horsham, where they were welcomed by Mr. and Mrs. John Dalrymple, Mr. Sam Smith, M.R.C.V.S., and Mr. Laker, M.R.C.V.S. The high-class pedigree herd of Ayrshire cattle was inspected, the system of breeding, recording, and particularly the keeping of breeding records was explained and created great interest. The method of rearing which involved transportation of young stock at six months old to Scotland and their return at down-calving was recounted. The high altitude of the farm and the heavy clay-soil was not considered by the owner as ideal for the rearing of young stock. Mr. Steele-Bodger, who has acted as consultant to Mr. Sam Smith in connection with this herd, gave a demonstration of pregnancy diagnosis. The party then adjourned to the house where, after dispensation of hospitality by Mr. John Dalrymple, Monsieur Feunteun returned suitable thanks.

The journey was then resumed to Manor Farm, Hayling Island, where Mr. and Mrs. Douglas Walter received the party and entertained them to a most excellent farmhouse luncheon, following which an inspection was made of their three farms. These farms total approximately 700 acres with 300 head of Ayrshire stock. The building of the herds from non-designated standard to attested standard, the system of recording and breeding control was fully described. The methods of pasture management and the growing of fodder crops created very great interest among the delegates

who were also markedly interested in the very forward corn crops and the extensive horticultural crops produced on the farm. The nine farm horses which were met from time to time during the tour on the farms were greatly admired and the system of rearing of young stock from birth to when they were turned into a straw yard or pasture at six months, was explained. The extensive straw yard and open shed at the rearing farm were demonstrated and the system of bonuses to the W.L.A. farm workers in charge of the rearing created considerable comment in view of the extraordinarily good results obtained.

The next visit was to the Divisional Veterinary Office of the Ministry of Agriculture and Fisheries, Winchester, where the party was met by Mr. John Weir, M.R.C.V.S. (Superintendent Veterinary Inspector), Mr. Morris, M.R.C.V.S. (Divisional Veterinary Inspector), and Mr. John Barr, M.R.C.V.S., and Mr. Manley, M.R.C.V.S. (Veterinary Inspectors). Mr. Weir welcomed the party and explained the function of the Animal Health Division and its organization throughout the country. He paid particular attention to the close contact maintained with the farmers and with the veterinary practitioners who were all part of the State service. Mr. Morris then demonstrated the organization of the work of the Ministry in Hampshire, both in connection with disease control and eradication in all its branches, including poultry. Tea was very kindly provided, and after Monsieur Feunteun had expressed his thanks, the party proceeded to Southampton and inspected the veterinary premises of Mr. G. N. Gould, where the system or organization was explained and the facilities available were demonstrated.

During the evening a dinner party in honour of the members of the delegation was held at the Polygon Hotel, Southampton. A considerable number of Anglo-French guests attended, and were received by the President (Mr. G. N. Gould) and Mrs. Gould. Among those present were the Deputy Mayor (Coun. R. Stranger, M.C.), and Mrs. Stranger, the French Consul (Capt. R. Kolb-Bernard, D.S.C.) and Madame Alice Delvsia Kolb-Bernard, the American Consul (Mr. W. Beck) and Mrs. Beck, Com. Andre Falck (French Navy) and Mrs. Falck, Mr. J. K. Thompson (West African Dept., Colonial Office), Mr. John Smith, O.B.E., M.R.C.V.S., Mr. W. W. Henderson, O.B.E., M.R.C.V.S. (British Colonial Office), and Mr. Robinson (International Relations, Colonial Office). The Chief Constable of Southampton (Mr. F. T. Tarry, C.B.E.), Mr. Clifford Harper (Headmaster, King Edward's School), Mr. John Weir M.R.C.V.S., Mr. E. Morris, M.R.C.V.S. and Mrs. Morris, Major J. Facer, F.R.C.V.S., D.V.S.M. (Southampton), Mr. T. Blampied, M.R.C.V.S. (Jersey), Mr. Manley, M.R.C.V.S., Mr. Melville, M.R.C.V.S., Mr. Brown, M.R.C.V.S., B.SC. The representatives of the farming community included Mr. J. Fawcett (immediate Past-President of the Hampshire Branch of the N.F.U.), Mr. J. Edgar, Mr. T. Parker, Mr. D. Walter and Mrs. Walter.

Mr. John Smith spoke of the successful and heartening co-operation between British and French veterinary services in West Africa in the fight against rinderpest. The objective was not merely control, but the elimination of the diseases that were ravaging the small and scattered herds belonging to the natives. "We are convinced we can do it," added Mr. Smith, "but we must have the help of the Africans themselves. We want them to become self-supporting through their cattle."

Monsieur Feunteun said it was agreed that the time had come to stop "passing the buck" over the frontiers. He was happy to report that the British and French colonial veterinary services had agreed on common action. The fight against cattle scourges would still be long and hard, but working as a team it would be won.

Talks which had taken place were to be followed by an important conference, and the French Colonial Veterinary Service, with their British colleagues assisting and giving the benefit of their advice, now felt most hopeful about the outcome of joint action.

Captain R. Kolb-Bernard, D.S.C., the French Consul at Southampton, proposed the health of the British Veterinary Service, and hoped that the unity that had been achieved in the veterinary sphere would be the forerunner of other joint actions between the two countries.

Mr. Gould welcomed the visitors, the Deputy Major (Councillor R. J. Stranger, M.C.) responding.

Mr. J. K. Thompson, West African Department, Colonial Office, thanked the N.V.M.A. for all that had been done to make the visit of the French Veterinarians so interesting and profitable. He also thanked Mr. Gould for his lively personal interest.

Other speakers were Mr. Clifford Harper (Headmaster of King Edward VI Grammar School), the Chief Constable of Southampton (Mr. F. T. Tarry, C.B.E.), Mr. Tom Blampied (a noted Jersey veterinary surgeon), and Mr. William H. Beck (U.S. Consul-General at Southampton) who proposed the toast of "The Ladies." Mrs. Gould and Madame Alice Delvsia Kolb-Bernard responded to the toast, the latter delighting the company by reciting a stirring French poem.

Mr. Tom Parker, Fareham, spoke appreciatively of the services veterinary science had rendered, and was still rendering, to farming and breeding.

The following morning the party went to Dunwood Manor Farm, Romsey, where they were met by Mr. and Mrs. G. McWilliam. They were shown the Jersey herd which had been maintained, tuberculin tested and attested and agglutination tested for the last 18 years. A very interesting demonstration and discussion on the possibilities and advantages of a breeding policy and of the results obtained from the judicious in-breeding and line-breeding followed. The system of disease control, feeding, rearing and management, including the intensive system of grazing and reseeding the pastures, was explained in full detail. The herd sires were paraded and a bull which had been sold for export to Barbados was inspected with great interest.

A visit was then paid to the Hampshire Cattle Breeders' Artificial Insemination Centre at Lyndhurst where the party was received by Mr. E. Conn, M.R.C.V.S., Chief Executive Officer. The bulls were paraded and full details were given of the organization, administration and technical application of artificial insemination. The policy of the Committee of Management and plans for the future were also discussed. The party lunched at the Crown Hotel, Lyndhurst, and then proceeded to Godshill, Fordingbridge, where they inspected a small typical mixed herd of forest cattle belonging to Mr. C. White. The system of disease eradication and control and the grading up of this herd to attested standard under veterinary supervision, the improvements to very poor buildings which had enabled them to be licensed for tuberculin tested milk and the system of establishing Jersey stock in this herd by artificial insemination created great interest.

The party then proceeded to Mr. Jack Stallard's herd at Burgate Farm, Fordingbridge, where they inspected the Friesian herd of about 160 head. The breeding policy, the grading up of the herd from non-designated standard to attested, disease control measures, the system of recording and breeding records were explained. A group of 13 heifers by the P.I. bull, the first seven of which had given over 1,100 gallons in their lactation and three cows in the herd which had achieved records of over 2,000 gallons created very great interest. A description of the method of rearing the young stock ended the tour of the dairy section of the farm, which is one in which grass is available for eight months of the year—the meadows being able to be flooded by irrigation from the river from time to time. The poultry rearing unit was then inspected; here 8,000 one-day old chicks per week are at present being produced. The system of sexing was explained. The visit terminated with tea, very kindly supplied by Mr. and Mrs. Stallard, and after thanks had been expressed by Monsieur Feunteun and Mr. John Smith, the party returned to Southampton and later to Waterloo.

Monsiuer Feunteun expressed very sincere appreciation for all that the N.V.M.A. had done in promoting this tour which would prove of the greatest help to them in their future endeavours.

The thanks of the Association are due to all at the various institutions and farms who made this tour possible and for their generous hospitality; also to the French Consul at Southampton (Capt. Kolb Bernard, D.S.C.), for his co-operation and help in allowing Monsieur Lentz to accompany the party and act so very ably as interpreter whenever necessary.

EUROPEAN FOOD SUPPLY: NEEDS OF LIVESTOCK

At its first session on Saturday last the Emergency Conference on European Cereals expressed the opinion that the world grain shortage made it necessary for fodder grain and bread grain of all kinds to be allocated or "programmed" by the Combined Food Board. These allocations, the resolution stated, must not only be based on the requirements for human consumption, as stated by the countries concerned; the needs of livestock, up to an agreed number, must also be taken into account.

The conference requested the agricultural sub-committee of the Emergency Economic Council for Europe to recommend to the Combined Food Board the best methods by which the allocation of fodder grain for livestock might be determined.

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Weekly Wisdom

The people of the world want bread, not advice. I want ploughs, not typewriters. I want fast-moving ships, not slow-reading resolutions.—Mr. La Guardia, Director-General of U.N.R.R.A.

NOTES AND NEWS

Diary of Events

N.V.M.A. Meetings at 36, Gordon Square:—

Apr. 15th.—Finance and General Purposes Committee at 11.30 a.m.

Apr. 16th.—Sub-committee on First Aid Handbook at 10 a.m.
Organizing Committee at 12 noon.
Joint Veterinary Officers and Public Health and Parliamentary Committee at 2 p.m.
Appointments Committee at 4 p.m.

N.V.M.A. Meeting at the Connaught Rooms, Great Queen Street:—

Apr. 17th.—Council Meeting at 11 a.m.

Apr. 17th.—Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at 1, Wimpole Street, W.1, 2.15 p.m.

Apr. 23rd.—Meeting of the Society of Chemical Industry (Agriculture Group), in the Physical Chemistry Lecture Theatre, Royal College of Science, Imperial Institute Road, S.W.7, 2.30 p.m.

Apr. 25th.—Meeting of the South-Eastern Division, N.V.M.A., at Maidstone (Royal Star Hotel), 2.30 p.m.

Apr. 26th.—Meeting of the Mid-West Division, N.V.M.A., at Clifton (Bright's Café), 2.15 p.m.

Apr. 26th.—Meeting of the Royal Counties Division, N.V.M.A., at Oxford (Randolph Hotel), 2.30 p.m.

Apr. 26th.—Meeting of the Yorkshire Division, N.V.M.A., at Leeds University, 2.30 p.m.

May 2nd.—Meeting of the Lancashire Division, N.V.M.A., at Liverpool (Stanley Abattoir), 2.30 p.m.

May 3rd.—Meeting of the Welsh Branch, N.V.M.A., at Aberystwyth, 11.30 a.m.

May 7th.—R.C.V.S. Animal Management Examinations, commencing in London.

May 7th.—R.C.V.S. Council Elections—Last date for Nominations.

May 11th.—Annual Meeting of the Association of Veterinary Inspectors, at Friends' House, Euston Road, N.W.1, 2 p.m.

May 21st.—R.C.V.S. Council Elections—Voting Papers issued.

May 28th.—R.C.V.S. Council Elections—Voting Papers to be returned.

June 4th.—R.C.V.S. Annual General Meeting.

June 4th.—R.C.V.S. Committee Meetings.

June 5th.—R.C.V.S. Committee Meetings.

June 6th.—R.C.V.S. Committee and Council Meetings.

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Parasitic Diseases of Cattle

Copies of the Report on Diseases of Farm Livestock, Section III, Parasitic Diseases of Cattle (N.V.M.A. Publication No. 8), are now available at 6s. 6d. post free, except that students and members may obtain this publication at the special reduced price of 2s. 6d. post free.

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PERSONAL

Reorganization of Veterinary Education in Egypt

DR. EDWARDS' OFFICIAL MISSION

For the above purpose, Dr. J. T. Edwards has been granted leave of absence by the Ministry of Agriculture and Fisheries for three months or so, to make an official visit to the School of Veterinary Medicine at Fuad University, Cairo. The Egyptian Government, through the medium of the Foreign Office, has made this request of the Ministry, as they wished particularly to obtain the services of Dr. Edwards in this connection. Dr. Edwards is leaving for Egypt by air immediately.

Sir Daniel Cabot and Mr. T. Dalling in the U.S.A.

Sir Daniel Cabot, the Chief Veterinary Officer of the Ministry of Agriculture and Fisheries, and Mr. T. Dalling, the Director of the Ministry's Veterinary Laboratory, are now in the U.S.A., where they will be conferring with the principal Veterinary Officers of the Department of Agriculture, Washington, and many research workers engaged on veterinary problems at other centres. Increased attention is now being given to genetics, especially in the U.S.A., and their visit will give Sir Daniel and Mr. Dalling an opportunity for becoming acquainted with American progress. They also propose to visit Canada to discuss with the Chief Veterinary Officer and his colleagues in Ottawa veterinary questions of mutual interest to this country and the Dominion.

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We are always glad to have news of the participation of members of the profession in local government affairs. Mr. J. S. J. Lauder, M.R.C.V.S., has been elected a member of the Hale (Cheshire) Urban District Council.

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Births.—HEATH.—On March 18th, 1946, to Effie, wife of G. B. S. Heath, of Ravenglass, Cumberland, a daughter.

LEWIS.—On April 6th, 1946, at Craigard Maternity Home, Campbeltown, Argyll, to Violet, wife of G. B. Lewis, B.SC., M.R.C.V.S.—a daughter.

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R.C.V.S. OBITUARY

TALBOT, J. F., Tuxford, Notts. Graduated Edinburgh, May 21st, 1897. Died, March 28th, 1946.

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The Late Dr. Fred Bullock

A FURTHER TRIBUTE

We feel that our readers will be glad to have the opportunity of reading the following references to his distinguished brother in a letter we have received from Mr. Albert Bullock, of Mansfield, Notts.

Mr. Bullock writes that he last saw his brother on "V2" day when he stayed with him at his flat, and continues: "At night I accompanied him with his wife to see the celebrations outside Buckingham Palace, and at that time he seemed to be in fairly good health. Since then, right up to December, 1945, I have been in correspondence with him, and although he had mentioned that he was feeling rather tired and overworked, there was nothing to suggest that he was seriously ill. All his letters, however, during the war years have stressed his staffing difficulties and his anxiety not to allow the work of the R.C.V.S. to fall below the high standard which he had set for himself, despite the almost insuperable difficulties with which he was confronted.

"To him the interests of the R.C.V.S. were paramount, surpassing all personal and private considerations. I can think of no man, in my long and varied experience of men in important administrative posts, who has so freely and willingly bestowed such tremendous mental energy and who has sacrificed himself so supremely to the cause he has espoused. Had he been a little less unselfish he might have been with us to-day—who knows?

"To the members of my family it is a great consolation to know that his outstanding and unremitting labours for the veterinary profession for nearly 40 years have been fittingly recorded for all time in the panegyric memoirs which have appeared in issues of *The Veterinary Record.*"

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ADDRESSES OF DISEASE-INFECTED PREMISES

SWINE FEVER:

Dumfriesshire.—Shillahill, Lockerbie, Dumfriesshire (Apr. 2nd).

Hunts.—"Barville," Middleton's Road, Yaxley, Peterborough, Northants. (Apr. 8th).

Lancs.—Mill Lodge Piggeries, Hammond Street, Preston, Lancs. (Apr. 8th).

Surrey.—Oaks Farm, Oaks Road, Leatherhead, Surrey (Apr. 2nd).

Yorks., E.R.—Field House, North Frodingham, Driffield, Yorks. (Apr. 8th).

VETERINARY EDUCATIONAL TRUST

The first annual Fison Lecture, made available to the Trust by Messrs. Fisons, Ltd., will be delivered by Earl De La Warr in the Main Lecture Theatre, The London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1, at 2.30 p.m. on May 9th, 1946. Lord De La Warr has chosen as his subject "The Work of the Agricultural Research Council and its Relation to Veterinary Science and Practice." The Duke of Norfolk, President of the Trust, will preside and all interested in the important subject of the lecture will be welcome.

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GOVERNMENT ACCEPTANCE OF THE LOVEDAY REPORT ON VETERINARY EDUCATION

Farming Comment

"At first sight," says *The Farmers' Weekly*, in its issue of April 5th, "the adoption by the Government of the Loveday Report on veterinary education may seem to be a matter of domestic affairs within the veterinary profession itself and not one upon which farmers could, or would, want to offer an opinion. We, as farmers are, however, very greatly concerned, if not with the question of college versus university teaching, certainly with obtaining an adequate number of most highly skilled practitioners to meet our needs.

"The need for improvement in the health of our livestock is not in doubt. Livestock still is and, so far as we can foresee, will continue to be, the king pin of the agricultural industry in this country. Of a total output (1939) of £220 millions per annum £156 millions or 71 per cent. was in the form of livestock or livestock products. Disease, however, is estimated to rob us of up to £40 millions a year. No one would claim, least of all the veterinary surgeon, that he could save us the whole of this amount, but even if a quarter or a tenth of it was saved by an adequate veterinary service, it would be immensely to the industry's advantage to promote and encourage that service.

"There has been some hesitancy among veterinary surgeons to increase the facilities for veterinary education on the grounds that there was a surplus of veterinary surgeons before the war. As a result, they say, some veterinary surgeons had difficulty in obtaining employment, and salaries were on a lower level than those paid in other professions. Any increase in the number of veterinary surgeons would only aggravate these conditions.

"On the other hand, responsible spokesmen within the profession, farmers, and persons speaking for the Ministry, have repeatedly told us that the most important factor holding up developments in livestock improvement policy has been the shortage of veterinary surgeons.

"This is, in fact, the opinion expressed by the Loveday Committee after examining all the relevant data, and one which we must accept as authoritative. We need the help of more and better veterinary surgeons to improve the health of our livestock. We, therefore, welcome wholeheartedly the Government acceptance this week of the Loveday Report on veterinary education.

"The farmer must not sit back and wait for the veterinary surgeons to appear. The mere opening of new colleges, whether within the universities or without, will not provide the veterinary surgeons we need. At the end of his training, the veterinary surgeon ought to be able to look forward to earning a livelihood commensurate with his professional training. He can only look to the farmer and to the Government for that livelihood. To both he can reasonably say: What are my prospects likely to be? And it is for us to be able to answer him. With the best will in the world it is difficult to do so at the moment.

"As individual farmers, we can say that we appreciate his services far more than our grandfathers did, or even than we did ourselves as little as ten years ago and that we realise in a far more lively and positive way the help he can be to us, not only in difficult clinical cases but in the prevention of disease. Our only difficulty is in telling him what the circumstances of our industry and particularly of the livestock industry, are likely to be when he comes to look for a job.

"The Milk Marketing Board and the veterinary surgeons themselves have a scheme or schemes for tuberculosis eradication among dairy cattle. This, however, would be only a part of a comprehensive livestock improvement policy. There are other forms of livestock as well as dairy cows, and present schemes such as the panel and projected schemes such as tuberculosis eradication deal with only a part of the problem.

"The whole premise of the Loveday Report is that more and better veterinary surgeons will be needed in the future to carry out a national policy of livestock improvement. The Government, in accepting the Loveday Report, seems to us to have also accepted the responsibility of initiating such a policy."

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HIGHER AGRICULTURAL EDUCATION

In its current issue *The Farmer and Stock-Breeder* comments editorially on the findings of the Loveday Committee on Higher Agricultural Education, published in January, and expresses regret that the report has attracted scant notice, for it was the "result of an influential, painstaking and very complete probe into the existing system, with recommendations calculated if not to revolutionize, at least to reorientate, our educational outlook."

"In particular," the editorial continues, "the Committee's report advised a grading-up of higher education to the point of making it revolve around the university. Agricultural colleges would be 'relatively small institutions engaged in a single field of study' and would need safeguarding against the danger of their teaching becoming 'narrow and stereotyped.' The Diplomas in agriculture had 'outlived their usefulness,' although it was generously admitted that they had served a valuable purpose in 'stimulating the demand for agricultural education, and setting a standard for teaching below degree level.'

"Now the Royal and the Highland Societies have made a combined and noteworthy protest against the proposed summary extermination of the Diplomas and against proposals apparently involving full university degrees as the only substitutes. There is ample justification for the Royal and the Highland in their objections to such dismissal from the educational plans of the future. The Loveday criticisms, sugared over as they are with the gratitude which the agricultural community is said to owe to these courses, may put at a discount persons holding the Diplomas, and place a handicap on their further progress. It is properly pointed out that the Diploma examinations have been conducted without a break since 1900, and during that time 1,878 Diplomas have been awarded. As pioneers in agricultural education, the societies have carried out a task that no one else thought of, or, if they did, would not undertake, and have persisted in that task despite frequent obstructive criticism and eventual withdrawal of support even by the Ministry itself.

"It is on the ground of the withdrawal of a Diploma course that is essentially practical in character that many will feel disposed to support the protest of the Royal and the Highland. There is an impression widely held that the Loveday report assumes that farming was made for agricultural education, while the possibility of education being made for farming appears to have been lost sight of. The Diploma courses seem to be a source of impatience to a committee who, whether they intend it so or not, would make the teaching body all the more exclusive, all the more a close corporation, with a strong probability of there being less actual contact with practical farming conditions.

"Whereas nowadays many university undergraduates also appear as candidates for N.D.A. as marking their possession of a hall-mark of practical knowledge, this tried and approved link is to be abandoned in favour of something entirely experimental. Holders of the Diploma have been prominent in the Government's food production campaign and the agricultural advisory services. But their qualifications are to be depreciated and ultimately extinguished and the status of the agricultural colleges is to be lowered if the committee's view is accepted. That view is that nothing below a university degree should qualify for research, advisory, or teaching posts. At a stroke, the work of 50 years is now to be handed over to other bodies who would appear to be claiming that they can offer better qualifications.

"It is true that the situation has greatly changed during half a century. But to suggest that the Diploma examination has not changed with the great developments that have occurred is to state less than the truth. The examinations have been conducted by the highest educational authorities in the land and have varied in character and advanced with the progress of knowledge and with the ever-changing conditions. . . .

"There is still time, we hope, for justice to be done to a scheme whose results are so widespread and confer a hall-mark hitherto universally accepted. The goodwill of the societies, with their experience, should be grafted on to the Loveday scheme as something which will bring all elements and all types, practical as well as purely scientific, into a really national open educational plan. In any case those who devised and conducted the examinations should have had the opportunity of defending them."

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"DOCTORS WILL NOT BE CIVIL SERVANTS"

Comments on the National Health Service Bill were made on Saturday by Mr. Aneurin Bevan, Minister of Health.

Mr. Bevan, addressing more than 500 representatives of the Institute of Hospital Administrators at Lincoln's Inn, said:—

"Teaching hospitals will be self-governing institutions maintaining their own traditions and their own identities, but in such a fashion as to enable them to come into the general scheme. Academic medicine is going to be wholly removed from, or left outside, State intervention. It is going to be a self-governing force.

"Doctors and hospital workers will not be Civil servants. You will be free to conduct agitation and vote against the Minister of Health at any time. There will be no limitation on the civil liberties of the people working in the national health service. The structure of the Bill has been so devised as to leave civic rights entirely undisturbed. Much will be done to bring the various sides of the hospital work together for the benefit of patients."

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

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THE PATHOGENICITY TO CATTLE OF *TRYPANOSOMA VIVAX*

Sir,—Before replying to some remarks of Mr. U. F. Richardson, published in the *Record* of February 16th, 1946, I wish to say that I recognize his almost unequalled authority on the literature of trypanosomiases, and I remember very well his "Notes on Trypanosomiases of Cattle in Uganda" in the *Transactions of the Royal Society of Tropical Medicine and Hygiene*, 1928, Vol. XXII, p. 137, in which he states that the pathogenicity of *T. vivax* for cattle is usually negligible, though possibly virulent strains exist. This may be the truth as a general statement, but in defence of my remark that in Northern Rhodesia *T. vivax* is neither rare nor of low pathogenicity I ask permission to give the following extract from an article of mine entitled "The Relative Pathogenicity for Cattle of *Trypanosoma congolense* and *T. vivax*" that appeared in the *Veterinary Journal* of February, 1921. I was describing an outbreak of disease among cattle in North Eastern Rhodesia:—

"Sixteen cows were found to harbour trypanosomes demonstrable by microscopical examination. Of these, ten were infected by *T. congolense* and six by *T. vivax*.

Species of Trypanosome	Animals affected	Gland only positive	Blood only positive	Blood & Gland positive
T. congolense ...	10 ...	1 ...	2 ...	7
T. vivax ...	6 ...	3 ...	1 ...	2

"This tends to show that *T. vivax* infection may be overlooked if one resorts to blood examination only. The glands usually examined are the prescapular ones.

"To determine from which infection spontaneous recovery under good conditions was likely to take place, we picked out four young cows affected with *T. congolense*, and four similarly harbouring *T. vivax*. They were left under the ordinary conditions of village management at a time of the year when grazing was still plentiful.

"Three months later all four *T. congolense* animals were dead. Of the *T. vivax* beasts one had died, one was very thin, but with blood and gland-juice positive, and two appeared to have recovered.

"To test the immunity of those two recovered animals, Mr. Goddard (a stock inspector) injected them subcutaneously with blood rich in *T. vivax*. Eight days later both were decidedly ill and their blood was heavily infected.

"I conclude, then, that in some districts a number of native cattle recover spontaneously from *T. vivax* infection, but that no great immunity results therefrom."

I was glad to read Mr. Richardson's views on the *modus operandi* of tartar emetic therapy, and I hope they will be carefully considered by those who are working on this and allied subjects.

Yours faithfully,

Poole Farm, Hartley, S. Rhodesia. H. E. Hornby.
March 20th, 1946.

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VETERINARY EDUCATION

Sir,—On reading to-day's *Supplement* to *The Veterinary Record* the profession, it is hoped, will realize that the whole of its contents has been provoked by the scattering of three allegations:

(1) That there is a shortage of veterinary surgeons.
(2) That the R.C.V.S. is incapable of turning out veterinary surgeons of the highest standard.
(3) That practitioners of the highest order can only be produced by allowing universities to give veterinary training and grant registrable qualifications.

These are false premises and it is for the electors to consider whether candidates for Council who have made these allegations are worthy of election.

The reversal of the agricultural policy of the Government, from grass to the plough, which has been forced upon them by circumstances over which they have no control, is bound to cause a decrease in livestock for years to come.

In fact last Monday, while the Minister of Agriculture was making his statement in the House of Commons on Veterinary Education, speakers at a meeting of the Farmers' Club, a few yards away, were declaring that a very considerable and alarming diminution of numbers in the herds and flocks of this country seemed to be inevitable!

Is this the time for veterinary surgeons to advocate and support the instituting of new and additional veterinary teaching schools, for the turning out of more veterinary surgeons, unless the production of very grave unemployment in the veterinary profession in the not distant future is the object in view?

Yours faithfully,
Thomas Lishman.

23, Queen's Gate Gardens,
London, S.W.7.
April 6th, 1946.

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RESOURCES OF THE PROFESSION FOR SPECIALIZED WORK

Sir,—While I have every sympathy with Mr. J. L. Stewart's views on veterinary education, the example he has chosen in his letter in your issue of 6th inst. is rather unfortunate.

Mr. Stewart is evidently not aware that veterinary investigation officers are attached to the three Scottish Agricultural Colleges and that they will be playing a full part in the schemes of hill sheep research to which reference has been made. The article in the *Farming News* refers to the generous facilities offered by the Duke of Roxburgh to the East of Scotland College, and it might be well to point out that these facilities were, in the first place, offered through the veterinary investigation officer of that college who, during the late summer of 1945, paid several visits to make preliminary investigations on the farms in question.

The area in question appeared typical of the hill sheep problem in general; there had been a gradual deterioration in pasture, heavy losses in sheep, a high abortion rate, and an apparent increase in the tick population; there was also evidence of cobalt deficiency. These farms appeared ideal as bases for a thorough general investigation of hill sheep problems. Mr. Stewart is right in saying that hill sheep disease research is a "highly specialized activity," but it is a type of research which must be done by a *team* of specialists who need not and cannot all be veterinary surgeons. The scheme of work at Bowmont Water envisages a thorough disease survey with *post-mortem* and laboratory examinations, a soil survey employing spectrographic analysis, botanical and geological surveys and a tick survey. Probably there will, in addition, be work carried out by the economist to compare the economics of a disease-ridden area with another hill sheep area in healthy country.

Mr. Stewart may rest assured that the veterinarians attached to the Scottish Agricultural Colleges are fully alive to their responsibilities and that they will play a full part in any schemes of animal disease research sponsored by the Colleges. The Veterinary Investigation Service in Scotland is only three years old, but it has grown very rapidly. It already employs two qualified veterinarians at each of the Colleges and, I understand, further expansion of the service is likely to occur very soon.

By all means let us do all we can to ensure a thorough scientific training for our veterinary students, and let us avoid the label "semi-scientific," but we must retain a sense of proportion. Veterinarians must play a full part in all schemes of animal disease research, but we cannot get on without the botanist, soil chemist, biochemist, entomologist, geologist, etc. The best results can only be obtained by a free interchange of ideas with all these specialists.

Yours faithfully,
H. E. Harbour.

The Cooper Technical Bureau,
Berkhamsted, Herts.
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